The background is a solid dark blue. It features several concentric circles in a lighter blue shade, centered around the text. A single, thin, light blue diagonal line runs from the top left towards the bottom right, passing behind the text.

# ‘ 87 VW Golfs and the Colorful Course of their Smog Checks

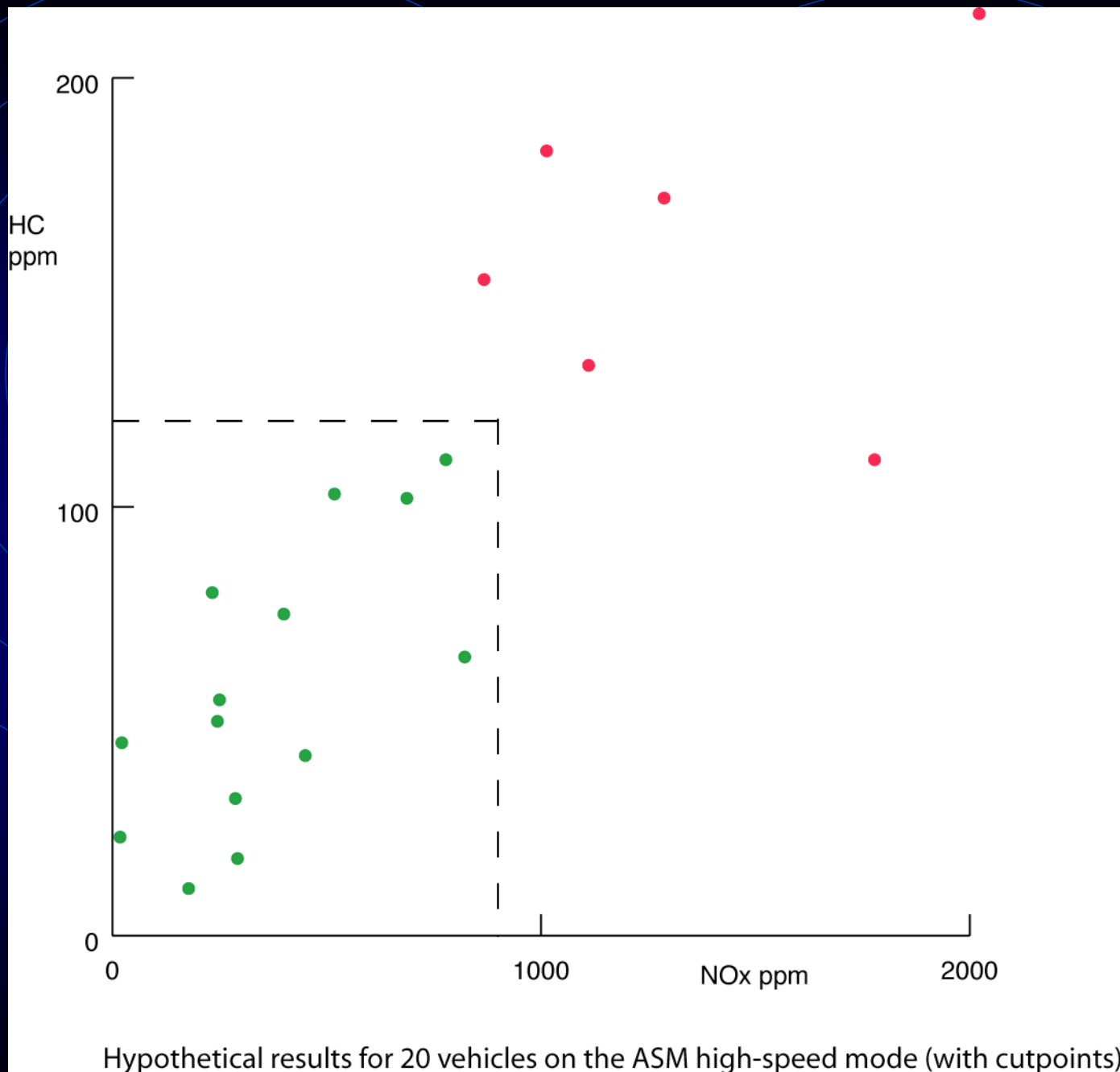
(or, at these rates, I might soon own a  
classic car)

Jeffrey Williams

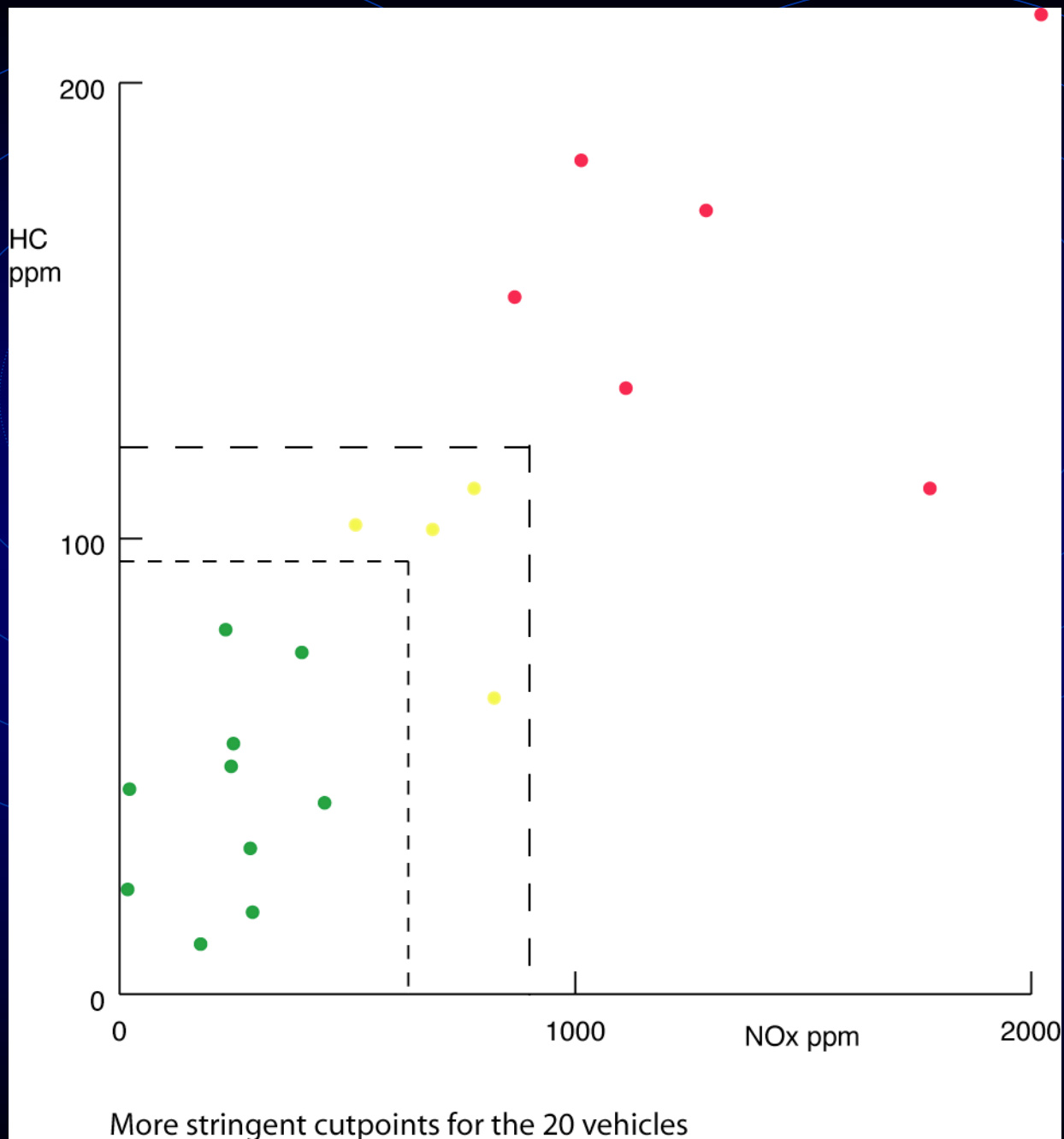
January 24, 2006

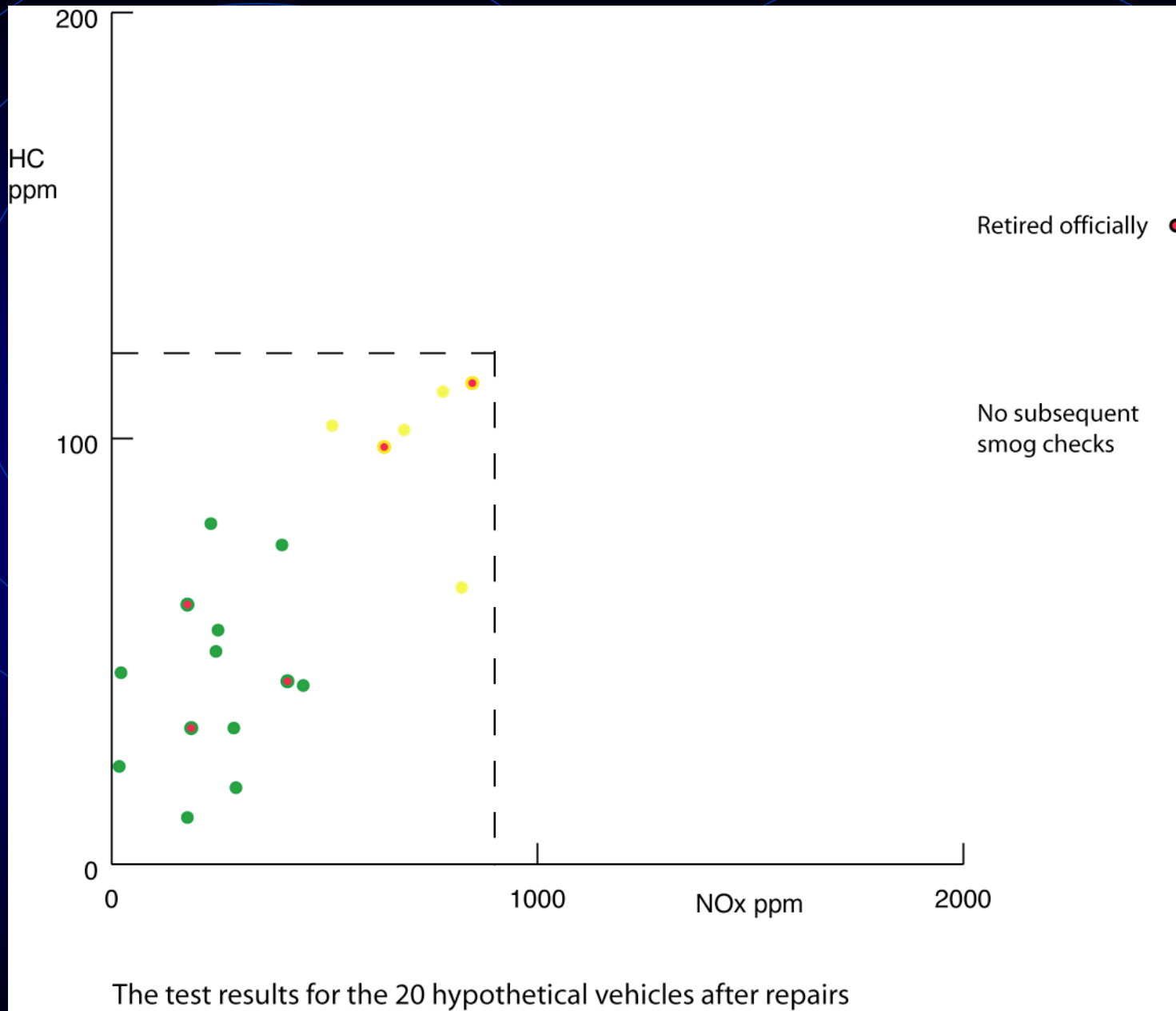
# Do individual smog check histories tell us something?

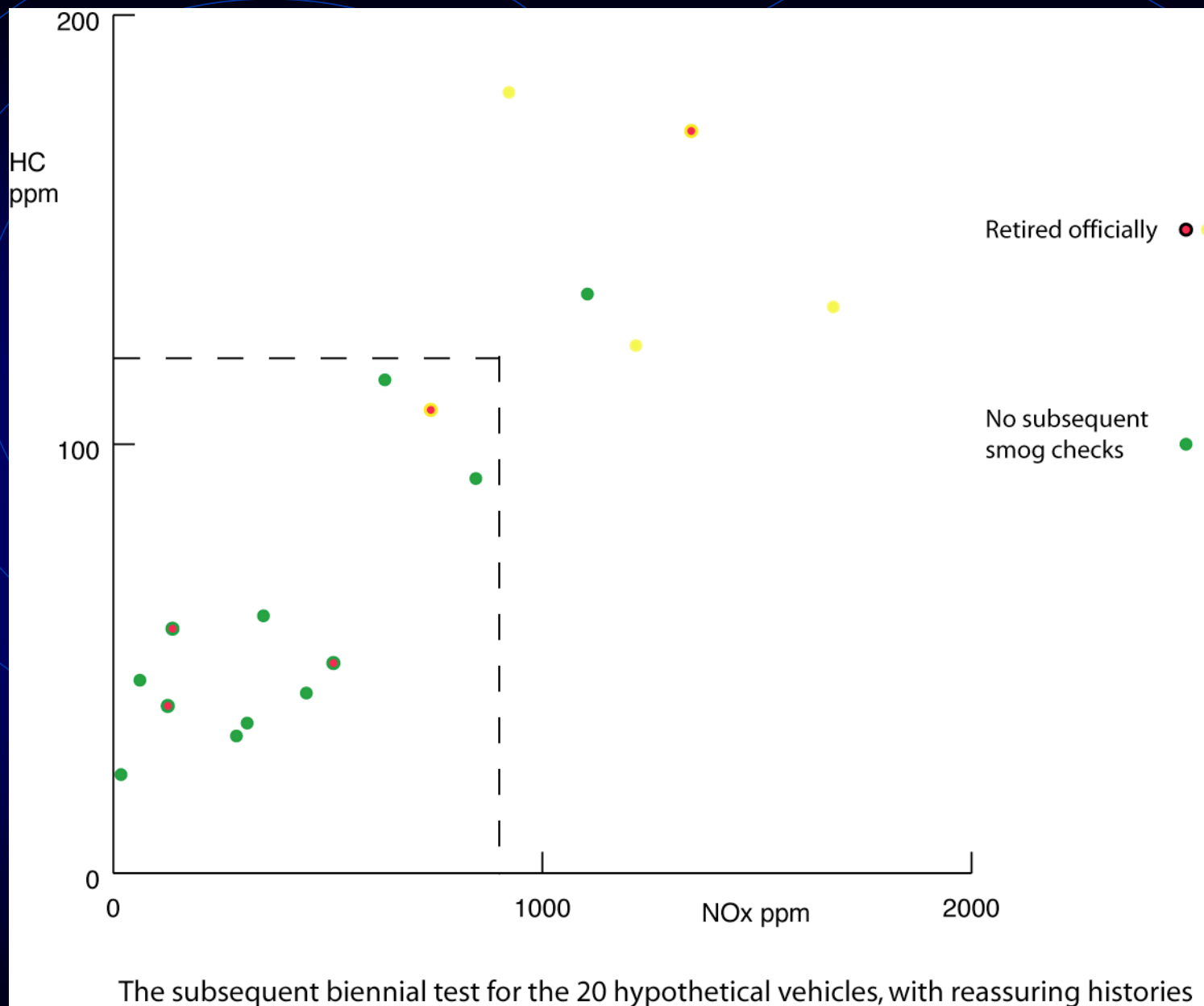
- Do repairs last?
- Are vehicles repeatedly failing?
- Are the worse performing vehicles being scrapped?
- Would more stringent cutpoints alter the fleet for future smog checks?

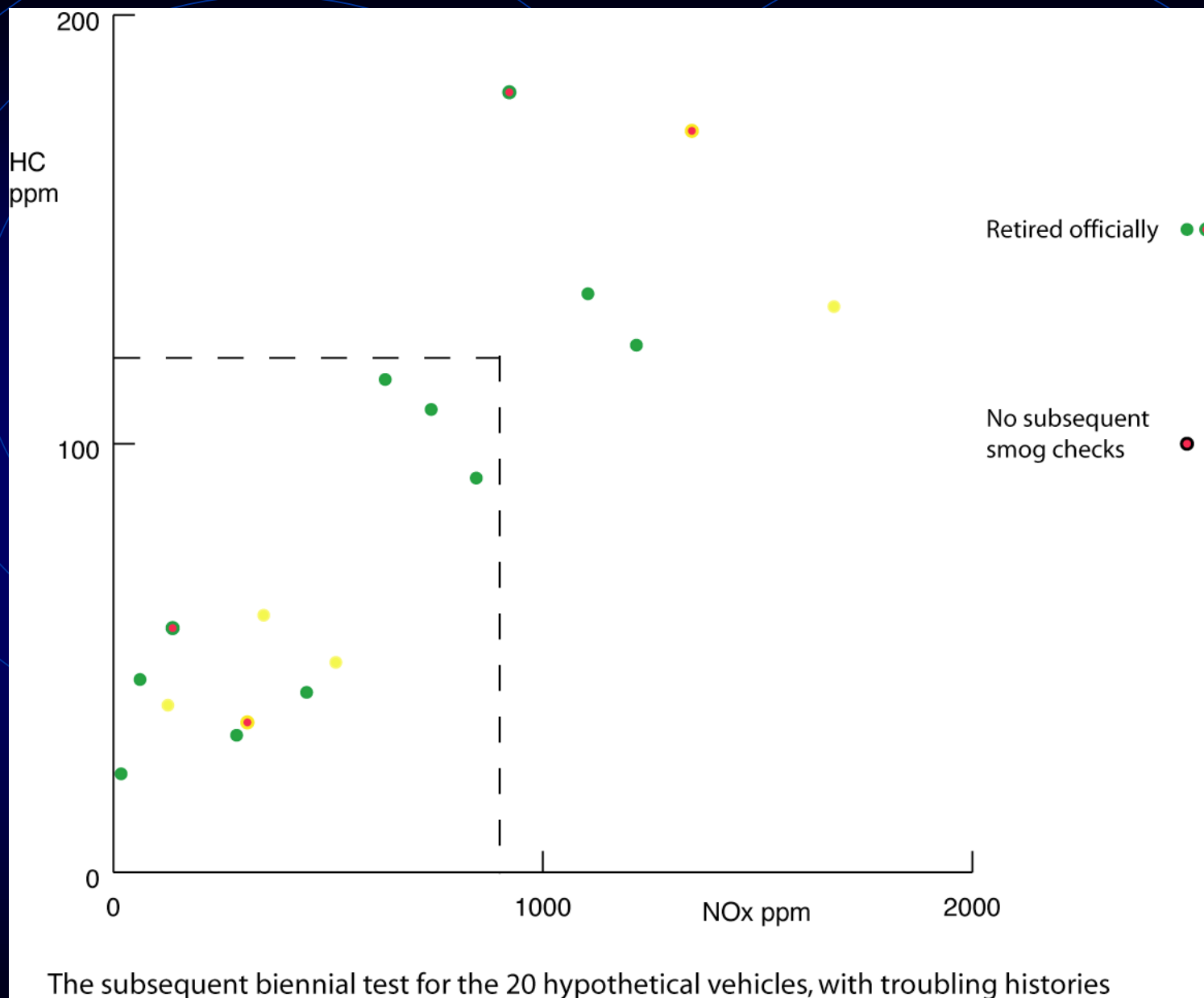


Hypothetical results for 20 vehicles on the ASM high-speed mode (with cutpoints)









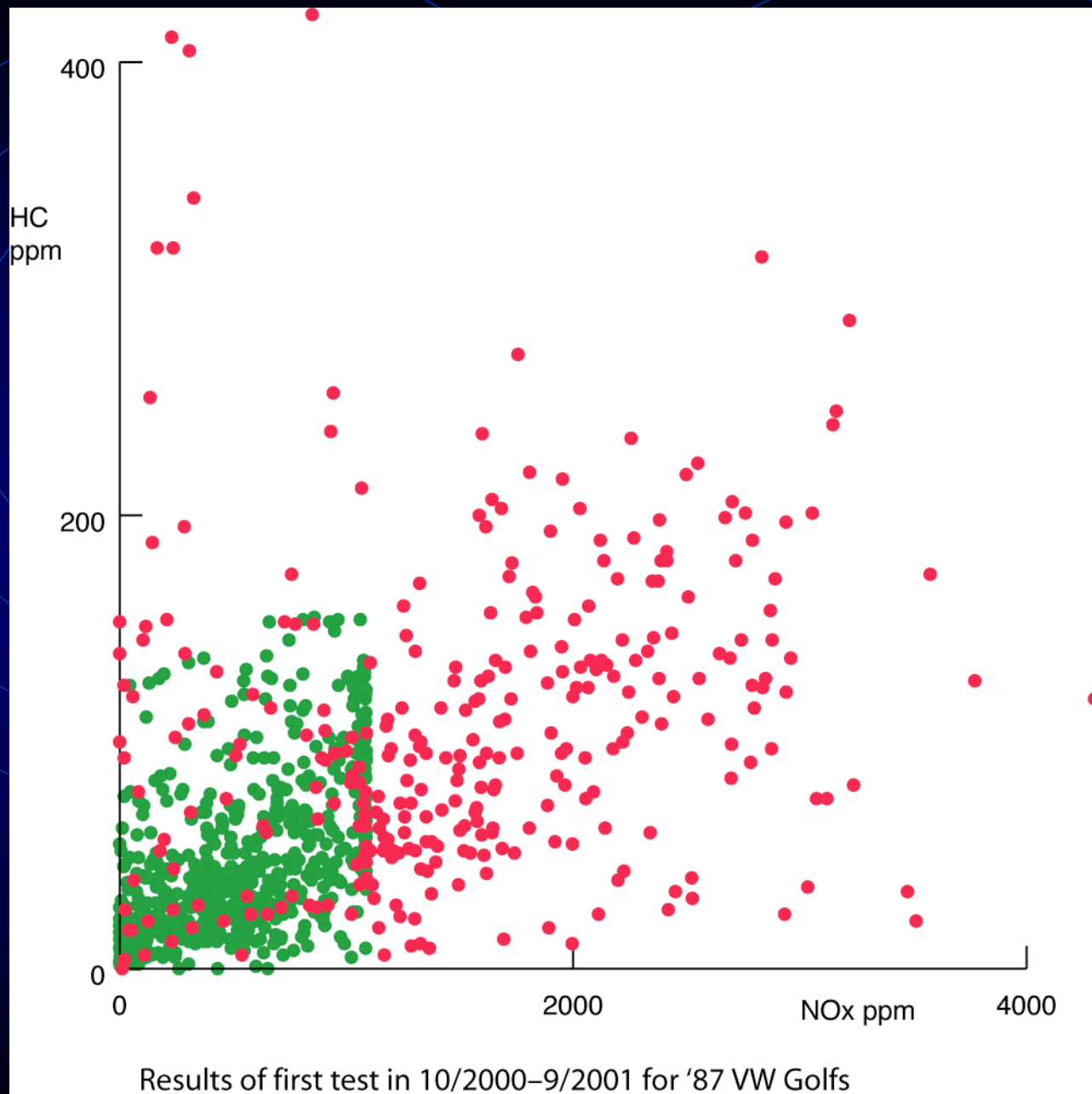
# Sample of 928 '87 VW Golfs

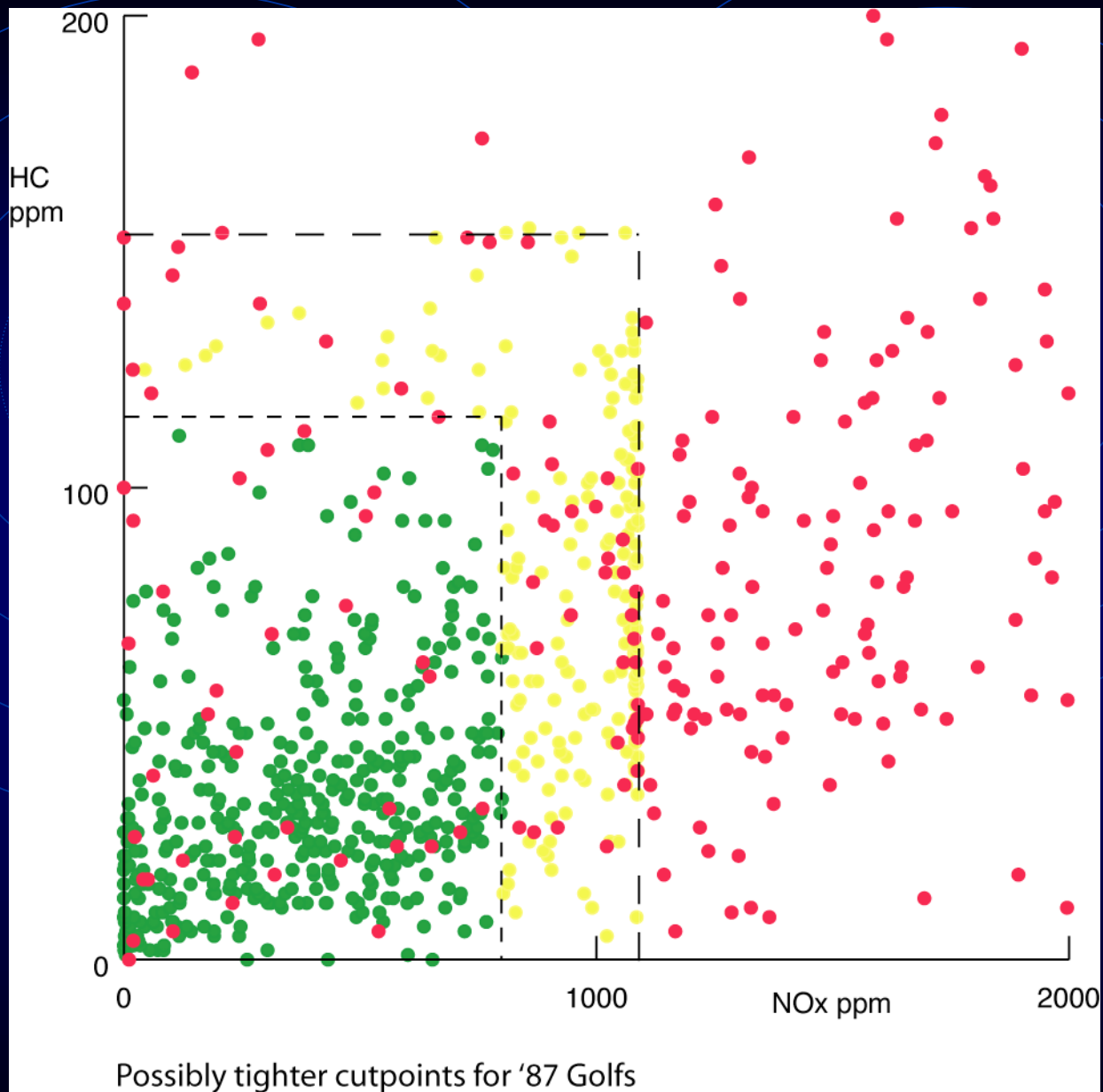
- Identified by VIN and sorted chronologically
- At least one ASM test within the period October 1, 2000 through September 30, 2001
- Aborted tests ignored
- Data on HC and NOx required
- Recognized in DMV records (and Junk or Non-Op status recorded if present)
- Further ASM tests noted, if first test was a fail, and a pass within 60 days
- Further ASM tests noted, if more than 1 or 3 years later

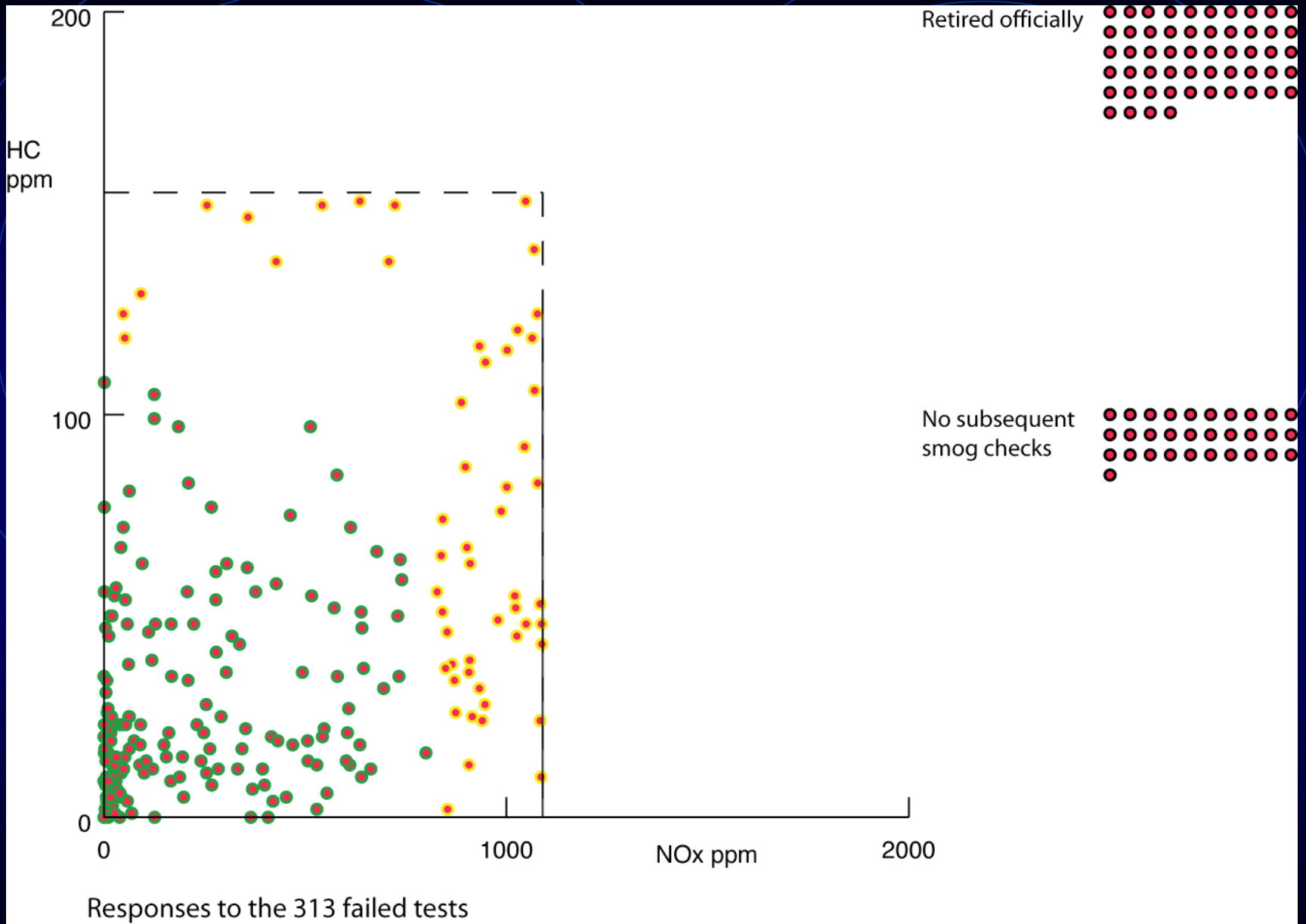


# Example of an '87 VW Golf

- VIN 1VWBA0173HV063851
- CA plate 2GKM228 paid through September 26, 2006
- RA214615,10,02,2001,11:08,119965,Q,0053,00.16,0605,P
- TG206043,10,05,2001,08:26,120026,C,0101,00.22,0599,P
- TA219714,10,21,2003,14:38,128117,P,0095,00.23,0835,P
- TA219714,07,14,2005,08:21,135656,P,0075,00.27,0833,P

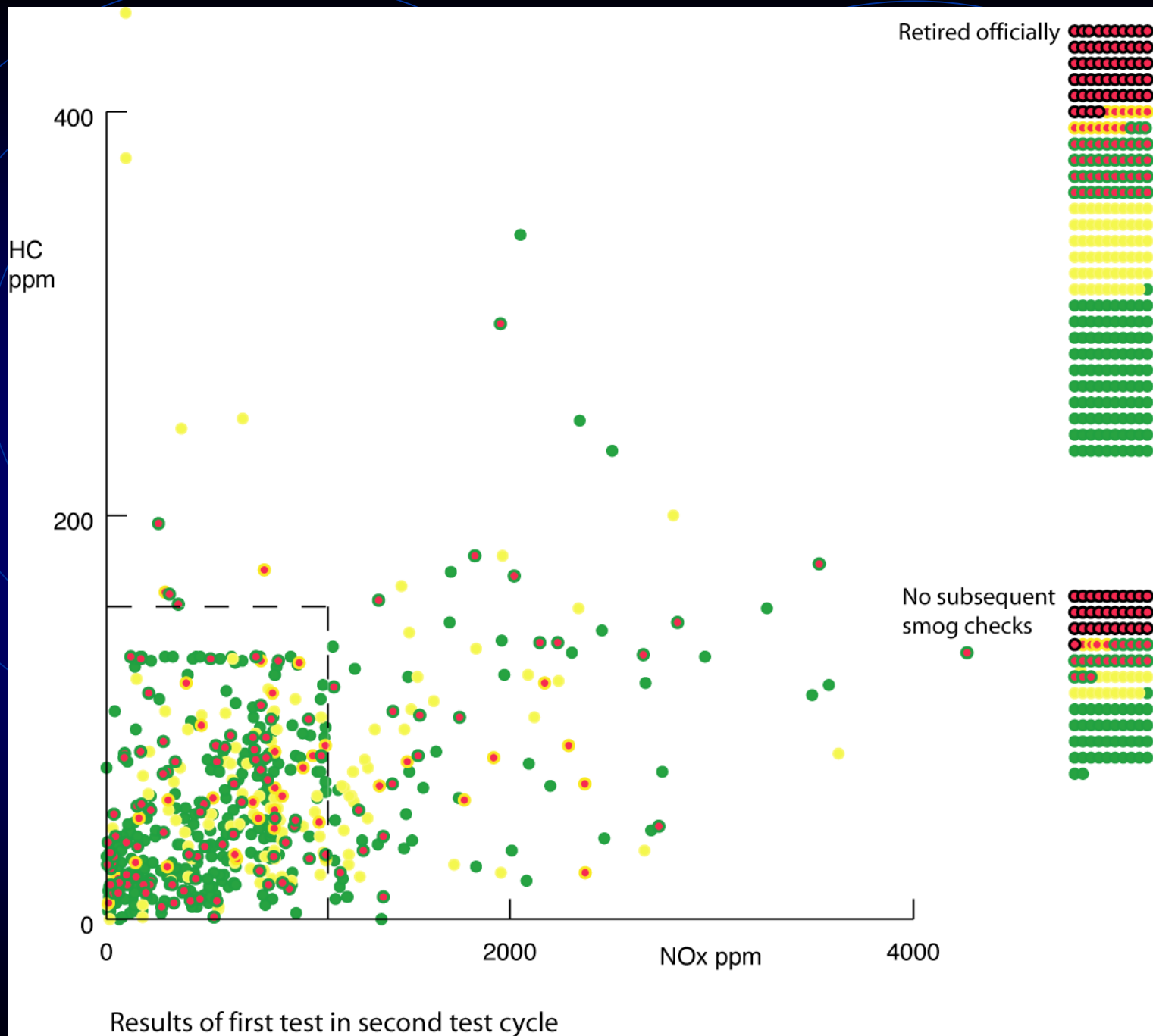






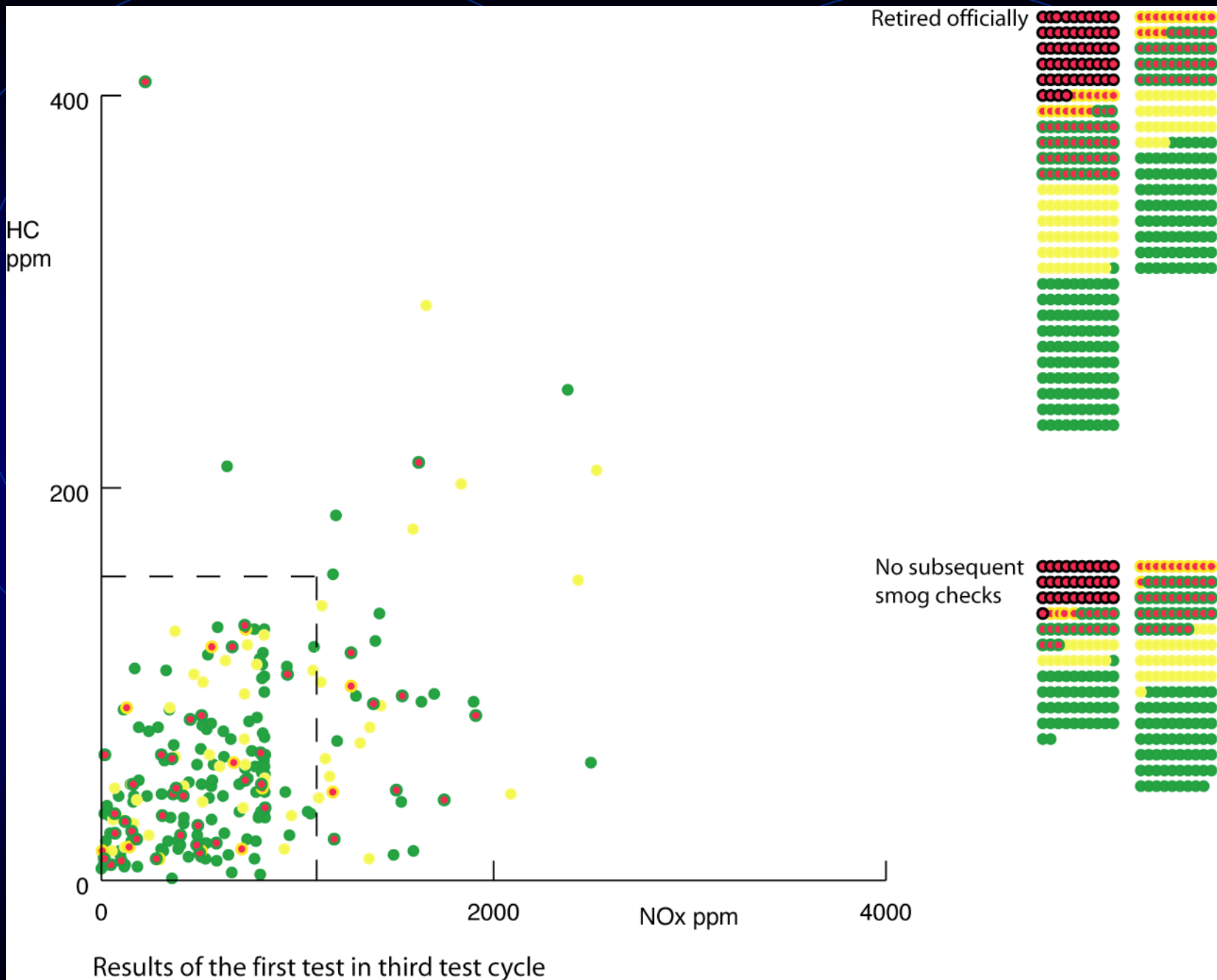
# '87 VW Golfs headed to a second test cycle

- 427 greens
- 188 yellows
- 53 red-yellows (corrected failures)
- 176 red-greens (corrected failures)
- 84 immediate retirements



# Failure rates in second cycle by color code

- Red-yellow: 43%
- Red-green: 36%
- Yellow: 50%
- Green: 26%





# Failure rates in third cycle by color code in first cycle

- Red-yellow: 25%
- Red-green: 23%
- Yellow: 24%
- Green: 24%

# Changing rate of failures

- 313/922 fails in 2001 (34%)
- 146/544 fails in 2003 (27%)
- 54/225 fails in 2005 (24%)

# Disproportionate survivorship

- Only 218 of original 922 are now registered (23%)
- Of original 313 failures, only 52 remain registered (17%)
- Of original 188 yellows, 46 remain registered (24%)
- Of original 427 greens, 120 remain registered (28%)